REMARKS

Applicant requests reconsideration and further evaluation of the rejections presented in the June 22, 2006 Final Office Action.

Claims 1-69 appear in this submission for the Examiner's review. No new claims have been added.

Claims 44-49 have been previously cancelled.

Claims 33, 54 and 62 have been previously presented.

Claims 1-32, 34-43, 50-53, 55-61 and 63-69 are original.

No new matter has been added.

Claims Rejections – Compliance with 35 U.S.C. §103(a)

As stated in Paragraphs 4 and 5 of the June 22, 2006 Office Action, Claims 1-43 and 50-69 are finally rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,888,648 to Donovan, et al. ("Donovan et al.") in view of U.S. Patent 6,221,410 to Ramesh, et al. ("Ramesh et al."). The applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness and requests the Examiner withdraw the rejections.

According to the M.P.E.P., to establish a *prima facie* case of obviousness, the Examiner must meet three basic criteria: Either the references cited or the knowledge generally available to one of ordinary skill in the art presents some suggestion or motivation to modify the reference or to combine references; the modification or combination presents a reasonable expectation of success; and the prior art reference or references teach or suggest all the claim limitations of the pending application. (M.P.E.P. § 2143 Eighth Edition, August 2001, Latest Revision August 2006.) Considering the prior art references the Examiner has presented, the applicant submits that the Examiner has met none of the three basic criteria.

No Suggestion or Motivation to Modify or Combine

The teachings of Donovan et al. are not interchangeable with the teachings of Ramesh et al. Donovan et al. attempt to solve a different and distinct problem than

Ramesh et al. Donovan et al. teach, in general, "a multi-layer film which is hermetically sealable and a method of improving the seal characteristics of multi-layer films which are hermetically sealable in high-speed packaging machines." (Column 6 lines 16-19.) The multi-layer film of Donovan et al. includes a main film substrate, especially oriented polypropylene (and other substrates). (Column 3 lines 65-66.) Ramesh et al. teach, in general, heat-shrinkable, multi-layer films for use in back seamed casings for meat products. (Abstract and Column 1 lines 15-16). Various layers of the multi-layer film of Ramesh et al. may include homopolymers or copolymers of polypropylene. (Column 17 lines 22-23, Column 20 lines 44-45, Column 21 lines 56-57, Column 22 lines 63-64 and Column 23 line 15.) However, the polypropylene taught in Ramesh et al. is not an oriented polypropylene (OPP) as that term is used by Donovan et al. and generally accepted in the art. Ramesh et al. do not teach the use of an OPP but teach the use of a polypropylene within an oriented film. Ramesh et al. explain,

> As used herein, the term "oriented" refers to a polymer-containing material which has been stretched at an elevated temperature (the orientation temperature), followed by being "set" in the stretched configuration by cooling the material while substantially retaining the stretched dimensions. Upon subsequently heating ***unrestrained, unannealed,*** oriented polymer-containing material to its orientation temperature, heat shrinkage is produced almost to the original unstretched, i.e., pre-oriented dimensions. More particularly, the term "oriented", as used herein, refers to oriented films, wherein the orientation can be produced in one or more of a variety of manners. (Column 9 lines 45-56, emphasis added.)
>
> The heat-shrinkable casing film according to the present invention preferably has a free shrink of from about 5-70 percent in one or both directions (i.e., longitudinal direction "L", also referred to as "machine direction", and transverse direction, "T") at 185°F., determined according to ASTM D 2732; more preferably, from about 10-50 percent at 185°F.; still more preferably, from about 15-35 percent at 185°F. Preferably, the casing film is biaxially oriented, and preferably the film has a free shrink, at 185°F., of at least 10 percent in each direction (L and T); more preferably, at least 15 percent in

> each direction. Preferably, the casing film has a total free shrink of from about 30 to 50 percent (L+T) at 185°F. (Column 8 lines 7-19.)

An oriented film is not necessarily a heat-shrinkable film; and an OPP is not the same as a heat-shrinkable biaxially oriented film containing polypropylene.

In applicant's April 6, 2006 Amendment, applicant submitted pages from ExxonMobil's website explaining ExxonMobil OPP films of the type used in Donovan et al. (assigned to Mobil Oil Corporation, which merged with Exxon Corporation in 1999). Copies of the website explaining the manufacturing process for OPP (at http://www.exxonmobilchemical.com/Public_Products/OPPFilms/Oriented_PP_Films/NorthAmerica/Description_and_Background/ManufacturingProcess/Opp_Desc_ManProcess.asp) and the dimensional stability of OPP (at http://www.exxonmobilchemical.com/Public_Files/OPPFilms/Oriented_PP_Films/NorthAmerica/Test_Method_Dimensional_Stability.pdf) are enclosed.

The manufacturing process for OPP films of the type used in Donovan et al. includes machine-direction orientation in step 3 and transverse-direction orientation in step 4. Step 4 also includes annealing (or heat setting) to impart high temperature stability. As explained on the PDF regarding the dimensional stability of OPP,

> Dimensional stability is the change in length of an unrestrained film sample subjected to a specific elevated temperature. . . . OPP films are typically designed for minimal shrinkage. . . . Dimensional stability is mostly determined by the OPP film's residence time and temperature in the annealing section of the orientation process. The annealing section involves the last zones of the transverse direction orienter and is where the oriented film continues to be held at the edges with tenter clips while surrounded by temperature-controlled oven air. This relieves residual stresses and creates "heat set" OPP. Without proper annealing, OPP is prone to greater shrinkage in heated environments.

In contrast to the films of Ramesh et al., ExxonMobil's OPP films, including the films of Donovan et al., are restrained and annealed. Example 1 and Example 5 of Donovan et al. include a description of the orienting and annealing (or heat setting) process similar to steps of the manufacturing process for OPP discussed above:

> The coextrusion was oriented in the machine direction followed by extrusion of a sealing layer of EPB random copolymer . . . . The total structure was then

> oriented in the transverse direction ***in an oven*** to provide biaxial orientation. (Column 12 lines 65-67, emphasis added.)
>
> The coextrusion was machine direction oriented followed by extrusion coating of a sealing layer . . . . The total structure was then oriented in the transverse direction ***in an oven*** thereby providing biaxial orientation to the film. (Column 13 lines 60-65, emphasis added.)

In Paragraph 11 of the October 6, 2005 Office Action, the statements of which are repeated in the June 22, 2006 Office Action, the Examiner states,

> It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have used the heat-shrinkable biaxially oriented polypropylene film of Ramesh et al. as the oriented polypropylene film of Donovan et al. since the heat shrinkable biaxially oriented polypropylene films are well known oriented polypropylene films for use in food packaging as taught by Ramesh et al. (Page 6, first full paragraph.)

And in Paragraph 6 of the June 22, 2006 Office Action, the Examiner similarly states,

> One of ordinary skill in the art would have recognized to have looked to Ramesh et al. for a teaching of how to modify the bag of Donovan et al. since both Donovan et al. and Ramesh et al. pertain to food packaging that includes oriented polypropylene films. (Page 7, second full paragraph.)

However, as explained above, the unrestrained, unannealed biaxially-oriented heat shrinkable films containing polypropylene of Ramesh et al. are different than, not substitutable for and not interchangeable with the restrained, annealed OPP films of Donovan et al. Ramesh et al. and Donovan et al. do not teach the use of similar polypropylenes. It would not have been obvious to one skilled in the art to use the film of Ramesh et al. as the film of Donovan et al.

There is additional evidence regarding the lack of motivation or suggestion to combine. The substitution of the films of Ramesh et al. as the film of Donovan et al. would render Donovan et al. unsatisfactory for its intended purpose. Donovan et al. teach away from the use of heat-shrinkable materials. Example 1 and Example 5 presented above describe an annealing process to prevent shrinkage of materials. Donovan et al. also explain,

> In order, therefore, to provide high barrier multi-layer film with hermetic seals, several factors must be considered. It is important to provide a sealing

> capability at as low a temperature as possible to order to retain, among other things . . . ***little or no film shrinkage***. . . . (Column 2 lines 19-25, emphasis added.)
>
> In order to provide a hermetic seal to packages formed from multilayer films, care must be taken to provide a sealing medium which accommodates the nature of the barrier film used for the package, i.e., its . . . ***adversity to temperature*** . . . . (Column 6 lines 20-25.)

(As discussed above, unrestrained, unannealed, oriented film shrinks when subjected to heated environments.) Donovan et al. also present several examples of structures of high barrier films that may be used in conjunction with the teachings of Donovan et al. (Column 9 line 55 – Column 11 line 13.) One of the example structures emphasizes the non-shrink characteristics of the high barrier films required by Donovan et al.:

> The sum of the absolute values of ***dimensional deformation is 2% or less*** in the longitudinal and transverse directions under conditions of 120°C. for five minutes. (Column 11 lines 5-8, emphasis added.)

Donovan et al. recognize the problem of providing hermetic seals with heat shrinkable films and attempt to address the problem simply by teaching that such heat-shrinkable materials should not be used. In view of that, the use of heat-shrinkable materials taught in Ramesh et al. would render Donovan et al. inoperable for its intended purpose. According to the teachings of Donovan et al., it would be improper to combine heat-shrinkable materials with the teachings of Donovan et al. "If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." (M.P.E.P. § 2143.01 V. Eighth Edition, August 2001, Latest Revision August 2006, citing In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).) Additionally, "it is improper to combine references where the references teach away from their combination." (M.P.E.P. § 2145 X.D.2. Eighth Edition, August 2001, Latest Revision August 2006, citing In re Grasselli, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983).)

The subject application also recognizes the problem of providing seals with sufficient seal strength when using heat shrinkable films; but, in direct contrast to Donovan et al., presents and claims a solution that uses and includes heat-

shrinkable materials. As stated on Page 3 lines 1-5 of applicant's specification submitted August 21, 2003:

> Accordingly, there is needed an improved heat-shrinkable packaging receptacle that includes seals of sufficient seal strength to survive the heat shrinking process and handling and resist spontaneous opening due to residual shrink forces, yet includes at least one heat seal that is readily openable by application of force without requiring use of a knife or cutting implement and without uncontrolled or random tearing or rupturing of the packaging materials . . . .

Applicant further states, at Page 23 lines 13-14 of applicant's specification, "The term 'heat shrinkable film at 90°C' means a film having an unrestrained shrinkage value of at least 10% in at least one direction." This 10% value may be considered surprising in view of the teachings of Ramesh et al. and Donovan et al. Ramesh et al. specify a shrinkage value of at least only 5% in one or both directions. (Column 8 lines 8-9.) And Donovan et al. limit the shrinkage value to no greater than a total of 2%. (Column 11 lines 5-8.) The subject application surprisingly includes, but is not limited to, teachings regarding a shrink film with a peelable seal where higher shrinkage values and shrink forces do not prematurely open the peelable seal. Donovan et al. limits the shrinkage value to reduce the shrink forces to prevent such premature opening. The subject application includes teachings to the contrary. "[P]roceeding contrary to accepted wisdom in the art is evidence of nonobviousness." (M.P.E.P. § 2145X.D.3. Eighth Edition, August 2001, Latest Revision August 2006, citing <u>In re Hedges</u>, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986).)

Considering (1) that the unrestrained, unannealed biaxially-oriented heat shrinkable films containing polypropylene of Ramesh et al. are different than, not substitutable for and not interchangeable with the restrained, annealed OPP films of Donovan et al., (2) that Donovan et al. teach away from the use of heat-shrinkable materials and (3) that the applicant proceeded contrary to accepted wisdom of the teachings of Donovan et al., the applicant respectfully submits that the Examiner has not demonstrated a suggestion or motivation to combine Donovan et al. and Ramesh et al.

No Reasonable Expectation of Success

As discussed above, Donovan et al., teach away from the use of heat-shrinkable materials. With such teaching, it would not be reasonable to expect that the combination of the heat-shrinkable materials of Ramesh et al. and the teachings of Donovan et al. would be successful. Therefore, the applicant respectfully submits that the Examiner has not demonstrated a reasonable expectation of success.

No Teaching or Suggestion of All the Claim Limitations

In Paragraph 11 of the October 6, 2005 Office Action, the statements of which are repeated in the June 22, 2006 Office Action, the Examiner concedes,

> Donovan et al. fail to teach that the polymeric film is heat shrinkable. (Page 5, second full paragraph.)

And in Paragraph 6 of the June 22, 2006 Office Action, the Examiner repeats,

> It is stated in paragraph 11 Office Action mailed October 6, 2005, that Donovan et al. fail to teach that the polymeric film is heat shrinkable. (Page 4, second full paragraph.)

As stated above, the Examiner relies on Ramesh et al. for the element of heat-shrinkability. However, as submitted by the applicant above, it is not proper to combine Donovan et al. with Ramesh et al. Accordingly, the applicant respectfully submits that the Examiner has not cited prior art that teaches or suggests this element of heat-shrinkability. "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." (M.P.E.P. §2143.03 Eighth Edition, August 2001, Latest Revision August 2006, citing In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).)

Claim 1, Claim 43 and Claim 50 of the subject application each includes the limitation of a sheet of heat-shrinkable film. Claims 2-42 and Claim 63 depend (ultimately) from Claim 1 and, hence, include the limitations of Claim 1; and Claims 51-62 and Claims 64-69 depend (ultimately) from Claim 50 and, hence, include the limitation of Claim 50. Therefore, the applicant submits that Claims 1-43 and Claims 50-69 are patentable over Donovan et al. and Ramesh et al. and respectfully requests that the Examiner withdraw the 35 U.S.C. §103(a) rejection to these claims.

Conclusion

In view of the above remarks, the applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness and requests that the Examiner withdraw the outstanding rejections. The applicant submits that the claims are patentable and in condition for allowance.

If a telephone conference would expedite allowance of the claims, the Examiner may contact the applicant via applicant's attorney at (920) 303-7970.

Respectfully submitted,

Date: December 21, 2006

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ExxonMobil Chemical

Dimensional stability

ExxonMobil # 438
ASTM D 1204

Definition

Dimensional stability is the change in length of an unrestrained film sample subjected to a specific elevated temperature. ExxonMobil typically measures this property at 275°F (135°C). Machine direction (MD) and transverse direction (TD) values are evaluated and reported separately. Units are reported as % change from the original dimension.

Relevance to performance

In general, materials expand when subjected to elevated temperatures. Oriented films, on the other hand, are likely to shrink because the polymer has "memory" and tries to return to its unoriented dimensions. Dimensional stability values for different films (measured at the same temperature) provide a relative comparison of how much film distortion will occur in heated processes, like oven drying or package sealing. Acceptable temperatures for processing a film vary and are dependent on the film properties, the type of process (contact with heated air or heated metal), the dwell time, and whether the film is restrained or not.

OPP films are typically designed for minimal shrinkage. Most ExxonMobil OPP films can be used in very high-speed, low-dwell heat seal applications with actual crimp jaw temperatures of up to approximately 355°F (180°C) without causing unsightly seal distortion. However, longer dwell exposures (> ½ second) require that temperatures do not exceed about 300°F (149°C) to prevent severe shrinkage. OPP is commonly used at temperatures between 220°F and 300°F (104.5°C to 149°C), where it can have a slight dimensional change. Test values at 275°F (135°C) for tenter-oriented OPP are typically -2% to -8% in both the machine and transverse directions.

Some films are designed to shrink in a predictable way, like the new, developmental ExxonMobil film Bicor TYTE. TYTE provides a crisp, tight overwrap for products like CD jewel cases, video tapes, and food or pharmaceutical boxes. Its dimensional stability values are -9% in the MD and -14% in the TD.

What affects dimensional stability

Dimensional stability is mostly determined by the OPP film's residence time and temperature in the annealing section of the orientation process. The annealing section involves the last zones of the transverse direction orienter and is where the oriented film continues to be held at the edges with tenter clips while surrounded by temperature-controlled oven air. This relieves residual stresses and creates "heat set" OPP. Without proper annealing, OPP is prone to greater shrinkage in heated environments.

Test principles

ASTM D 1204 and ExxonMobil procedure # 438 follow the same principles, but differ in some specific protocols. Both tests involve placing a film sample of known original dimensions into a temperature-controlled convection oven for a certain period of time and measuring the length of the sample after conditioning. Results are reported as % change. Negative numbers indicate shrinkage, while positive numbers indicate expansion.

Pertinent details of the two procedures are summarized in Table 1.

Test Procedure	Test Conditions					
	Specimen Size	Oven Temperature	Time in Oven	Pre/Post Conditioning	Precision	Reporting
ExxonMobil # 438	1" x 7" cut in MD, and one in TD	Convection oven controlled to target, typically 275°F (135°C)	7 min	None	Nearest .02 inches	% change
ASTM D 1204	10" x 10"	Convection oven controlled to target ± 1°C	As appropriate depending on film tested	Yes, at standard laboratory temperature and humidity	Nearest .01 inches	% change

Table 1: Comparison of dimensional stability test conditions between ExxonMobil and ASTM procedures